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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/054,009
Filing Date: January 21, 2002
Appellant(s): SAUNDERS ET AL.

Timothy D. MacIntyre
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 2/27/06 appealing from the Office action mailed 11/1/05.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6, 9-10, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Richards (U.S. Patent No. 6,778,778).

Regarding claim 1 and 21, Richards teaches a network diagnostic system for an optical transport network having a plurality of network elements, comprising, a first network element (reference numeral 12, 20, 38 in Figure 1) residing in the optical transport network (reference numeral 10 in Figure 1), the first network element having a network diagnostic operation integrated therein (reference numeral 12, 38 in Figure 1) and operable to perform the network diagnostic operation, wherein the network diagnostic operation directly monitors an optical signal traversing the optical transport network (e.g. "test signal" throughout), a network diagnostic device (reference numeral 62 in Figure 1) in data communication with a second network element (reference numeral 24 in Figure 1) residing in the optical transport network (reference numeral 10 in Figure 1) and operable to initiate the network diagnostic operation at the first network element; the second network element (reference numeral 24 in Figure 1)

adapted to receive a request to initiate the network diagnostic operation from the network diagnostic device (reference numeral 62 in Figure 1), the second element (reference numeral 24 in Figure 1) operable to map the request into at least one optical network frame (column 6 lines 48-61) and transmit the optical network frame over an optical supervisory channel (e.g. by virtue of the OSS nature of element 24 in Figure 1; column 5 lines 24-31) of the optical transport network to the first network element (reference numeral 12, 38, 20 in Figure 1).

Regarding claim 2, Richards teaches that the network element is further operable to communicate the network performance data determined by the network diagnostic operation to the network diagnostic device (column 5 lines 40-41).

Regarding claim 3, Richards teaches that the network diagnostic device is operable to display the network performance data received from the first network element (via computer 62 in Figure 1).

Regarding claim 4, Richards teaches that the network diagnostic device (reference numeral 62 in Figure 1) is directly connected to the second network element (reference numeral 24 in Figure 1).

Regarding claim 5, Richards teaches that the network diagnostic device is connected via a computer network (reference numeral 24 in Figure 1) to the second network element.

Regarding claim 6, Richards teaches that the second network element is further operable to communicate in real-time the network performance data determined by the network diagnostic operation to the network diagnostic device using TLI network management protocol (inherent in the ongoing machine to machine communication).

Regarding claim 9, Richards teaches that the second network element is adapted to receive Ethernet frames from the network diagnostic device, where the Ethernet frames embody a request to initiate the network diagnostic operation; the second network element being further operable to map the Ethernet frames into at least one optical network frame and transmit the optical network frames over an optical supervisory channel of the optical transport network (column 5 lines 32-41; e.g. "spare channel" in column 6 lines 13-26).

Regarding claim 10, Richards teaches that the first network element is adapted to receive the optical network frames over the optical supervisory channel (e.g. "spare channel" in column 6 lines 13-26) from the second network element and to extract the Ethernet frames from the optical network frames (inherent in the use of the Ethernet protocol in the system).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 7, 11-20, and 22-31, 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards.

Regarding claim 7, Richards differs from the claimed invention in that Richards fails to specifically teach that the first network element is further operable to store the network performance data in a storage medium residing on the second network element and the network diagnostic device operable to retrieve the network performance data from the second network element using a file transfer protocol. However, it is clear that the network element in Richards

is of the typical sort and is clearly capable of storing the performance data until the diagnostic device retrieves it. Furthermore, storage of performance data at network elements is well known in the art. One skilled in the art would have been motivated to include storage at the network element in order to allow the diagnostic device to develop an better understanding of the long term operational characteristics of the network element and to retrieve that information at will. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to include a storage medium at the first network element and allow the diagnostic device operable to retrieve the network performance data from the first network element using a file transfer protocol.

Regarding claims 11-20, 22-31, and 33-36, Richardson differs from the claimed invention in that Richardson fails to specifically teach the various diagnostic operations claimed. However, the diagnostic methodologies claimed are well known in the art and easily applicable to the system of Richardson. Furthermore, one skilled in the art would have been motivated to employ the various methods claimed in order to develop an overall measure of system performance based on a variety of measures. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ the diagnostic methodologies claimed in the system of Richardson.

(10) Response to Argument

The examiner agrees in general with the Appellant's first four lines of the submitted argument that very broadly describe how the testing system of Richards functions. However, for the remainder of the Brief, the Appellant significantly departs from what is disclosed in Richards.

First, the Appellant makes a critical error in understanding the disclosed invention of Richards. The Appellant's contention that a field technician physically standing next to element 12 in figure 1 activates the test-drive signal by pressing a laser power actuator on the transmitter to produce the test signal is incorrect. In fact, the thrust of Richards' invention is to provide a means for freeing the technician from having to be present at the test-drive signal transmitter's site by providing the ability to control the transmitter from afar via an LAN or Internet connection (column 2 lines 33-44, column 4 lines 43-50, column 5 lines 50-62), thereby allowing the technician to be remotely located but appear to the test-drive signal transmitter "as if being on site and physically connected to the NE." Also incorrect is the Appellant's contention that the display device simply monitors performance of the network elements, but does not initiate any diagnostic operation at the transmitter 12. In fact, Richards explicitly discloses that the opposite is true. Richards, discloses that "a single field technician can both operate the transmitter 12 and monitor the entire circuit 16 from a display device 62 at a remote location" (column 5 lines 50-62).

Next, the Appellant contends that the second network element 24 fails to map the request into an optical network frame and transmit the optical network frame. The Appellant substantiates this contention by noting that Richards' network 24 is based on the Ethernet protocol. However, the Ethernet protocol is, by definition, a frame-based computer networking technology. What's more is that higher speed Ethernet variants of today use fiber optical cable as a connection medium for transporting the Ethernet frames. While not explicitly disclosing that fiber optical cable is used to as the transport medium, what is certain in Richards is that the request is mapped into a frame, namely an Ethernet frame. Couple this fact with Richards'

disclosure of an intermediate dense wavelength division multiplexing (DWDM) management system that provides an interface directly to the network elements (NE) including the transmitter 12 (column 5 lines 24-31, 50-62), and it becomes almost certain that the Richards' Ethernet frame is at some point converted to an optical frame form by, at least, the DWDM management system interface.

To explain further, it is important to keep in mind that the technician's request to activate the test-drive signal at transmitter 12 is entered at display device 62, a computer or laptop that inherently outputs such requests as electrical signals. As such, an interface of some type must be provided to enable the electrical-signal-outputting computer to communicate with the optical-signal-based network element, the transmitter. As noted above, it is clear it that this electrical request is formatted according to the Ethernet protocol as an Ethernet frame. What is not clear is at what point this electrical Ethernet frame becomes an optical Ethernet frame. However, being that the Ethernet frame is transported from the technician's remote location, possibly across the country, via an Ethernet network 26 before reaching transmitter 12 (column 5 lines 50-62), it stands to argue that at some point in traversing this country's vast optical backbone network, this Ethernet framed request would be converted to an optical network frame. An explicit disclosure of when the conversion takes place aside, Richards provides for a final step just in case the request reaches the transmitter of the optical network in an electrical form: the DWDM management system which provides an interface, or means for establishing communication between the electrical Ethernet frame and optical network element. Therefore, to assert that the Ethernet network is clearly distinct from the optical network is again incorrect since Richards specifically discloses an element that joins the Ethernet protocol based network 24 with the test-

drive signal transmitter 12 of optical network, namely the DWDM management system interface.

Perhaps most damaging to the Appellant's argument is the fact that Richards discloses that the transmitter 12 and the computer or laptop display device 62 can be connected via an Operations Support Systems network (OSS), and further that the invention is applicable to ***any*** transport framing structure with system support for "in-band" signaling and detection of key performance measures (column 3 lines 5-16, column 6 lines 48-61). This disclosure coupled with Richards disclosure throughout the patent of "testing of cross-country circuits ***over DWDM*** by a single person" at minimum is enough to suggest that at some point the Ethernet frame can be converted to an optical Ethernet frame, and at best suggests that the Ethernet frame must be converted to an optical frame in order to be usable over an optical system like a dense wavelength division multiplexing system.

Turning now to the balance of the Appellant's arguments, the examiner maintains, as discussed above, that the transport framing structure claimed by the Appellant is met by Richards, and further that the frames are received over an optical supervisory channel (e.g. a channel of the OSS mentioned above). Regarding the Appellant's arguments against the rejection of the claims generally directed to data records for communicating network performance, the Appellant states that the art must show that the results of the diagnostic operations are transmitted across a network and between devices. To directly rebut this, the examiner notes that Richards specifically discloses that it is critical for a technician to have the ability to monitor the performance of the entire circuit 16 and all of its elements, and further that the diagnostic data collected from the variety of tests performed be made available to the remotely located technician (column 5 lines 1-62; column 6 lines 13-26). The examiner further

notes that each of the diagnostic operations claimed by the applicant are well known in the art of optical communications systems and were certainly not created by the applicant. Furthermore, Richards' frame based communication system provides for header data and diagnostic results data to be carried in the payload of the frame. As such, it is clear that the system of Richards' formulates a data record for carrying the results of diagnostic tests. Moreover, Richards provides similar diagnostic operations (column 5 lines 1-23) and definitely formulates data records of the results for transmission back to the display device.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

A. Bello

Agustin Bello (Primary Examiner)

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